

NEW SPECIES OF *ASPILIA* FROM BRAZIL.

Harold Robinson
Department of Botany
Smithsonian Institution, Washington, D.C., 20560.

The present paper continues the process of describing new species of *Aspilia* from South America, a process begun in a previous paper in a series on the *Wedelia-Aspilia* complex in Brazil (Robinson, 1984b). The species descriptions and notes provided here hopefully bring the coverage of the genus in the area to the level attained for *Wedelia* in Brazil in another of the recent studies (Robinson, 1984a). The generic limits of *Wedelia* and *Aspilia*, however, remain less adequately defined than those of two other related brasilian genera that have been studied recently, *Dimerostemma* Cassini (Robinson, 1984c) and *Angelphytum* Barroso (Robinson, 1984d).

In the present treatment, *Aspilia* is defined in the traditional way as those Ecliptine Heliantheae having a constricted apical crown bearing all the pappus elements, having little or no wing on the achene, and having sterile rays. As such, the genus shows many parallels in detailed characters with the related genus *Wedelia* which differs by having fertile rays. While some readjustment of generic lines seems inevitable, essential aspects of such a revision are still impossible to predict. Fortunately, obvious related groups of species do not seem to vary in the sterility or fertility of their rays.

In spite of the indications of its artificial limits, *Aspilia* shows a remarkable tendency to contain all the species in the *Wedelia-Aspilia* complex that have distinct fiber sheaths on the veins of the disk corollas and have black anther appendages (exception *W. brachycarpa* Baker). In addition, as seen in the present series, the basal tube of the ray corolla is glabrous or scarcely pubescent in species of *Aspilia* in Brazil but is often pubescent in brasilian *Wedelia*. The brasilian species of *Aspilia* also more often have sessile leaves, and the few seen with petioles seem generally anomalous, *A. latissima* Malme (*de Paula & Conceição* 1664; US; IBGE) in the broad leaf blades and the narrow wings on the petioles, and *A. pseudoyedaea* in the *Oyedaea*-like habit and the *Dimerostemma*-like shape of the disk corollas.

In the present effort a few older concepts of *Aspilia* species have been examined. Two species from Goias, *A. asperrima* (Gardn.) Baker (specimens seen *Heringer* 15568, *Macedo* 4418) and *A. attenuata* (Gardn.) Baker (specimen seen *Heringer* 15305) are notable for the stout form of the aristae on the achenes and the lack of a well-developed constriction under the pappus, for

which reason both species were originally described in the genus *Viguiera*.

Aspilia linearifolia Baker (*A. linearis* Blake, non *A. linearifolia* Oliver & Hiern) is evidently *Viguiera aspilioides* Baker.

Material under the name *Aspilia setosa* Griseb. has been reexamined and proves to include a variety of species. The typical element based on Argentinian material is close to *A. montevidensis* (Spreng.) O.Kuntze and has been reduced to a variety of the latter by Cabrera (1970). Other elements include the following.

A few specimens that have been identified as *Aspilia setosa* prove to be *A. reflexa* Baker which is usually readily recognized by its distally broader and coarsely serrate upper leaves and its more rounded basal leaves. Three specimens reported and distributed under the name *A. setosa*, King 8185, 8214, and 8229 prove to be *Wedelia bishopii* H.Robinson.

A large series of specimens under the name *Aspilia setosa* have proven to be *A. hirsuta* (Gardn.) Benth. & Hook.f. ex Jackson & Hook.f. Examples of the species seen include King 8258, 8744, 8937; Davidse & Ramamoorthy 10728; Mori & Funch 13385; Hoehn & Gehrt 17460; Irwin et al. 9837, 10525, 25044, 28261; and Anderson et al. 35310. The name *A. hirsuta* has most often been placed in the synonymy of *A. foliacea* (Spreng.) Baker, but the former is distinct in its longer foliose stems with more consistently elliptical leaves, by its longer straighter hairs on the stems leaves and involucre bracts, and by the distinctly shorter more rounded tips of the paleae in the heads.

A recent collection of *Aspilia warmingii* Baker (King & Bishop 8565) comparing closely with the type photograph, shows a similarity to *A. hirsuta*, but it has more sharply serrate leaves, shorter asperulous to hirtellous pubescence, and more prominent lower secondary veins in the leaves that often produce a distinct trinervation. The tips of the paleae are very broad and rounded.

A considerable amount of material from Minas Gerais and Bahia has been redetermined as *Aspilia fruticosa* (Gardn.) Baker including those determined as *A. parvifolia* Mattfeld which seems to be a synonym. Also included are Irwin et al. 20717 and 23119 that were identified as *A. clausseniana* Baker, a less shrubby species from farther south in Brazil. A somewhat similar plant under the latter name seems to be the variously ternately or alternately leaved *Aspilia anomala* Baker. Other shrubby plants with linear leaves and narrower involucre bracts, including some from Bahia that have been called *A. parvifolia* Mattf., Carvalho et al. 969, King & Bishop 8747, and 8776 appear to be *A. foliosa* (Gardn.) Baker.

A number of plants from Minas Gerais and Goias with usually erect stems from a xylopodium, with ascending branches above, with rather smooth elliptical leaves, and with terminal heads having large herbaceous involucre bracts seem to all represent *Aspilia laevissima* Baker. These include three specimens from

Goias, *Maguire, Maguire & Pires 44802*; *Irwin et al. 10397*; and *King & Bishop 8974*, and one from western Minas Gerais, *Pereira 142*, having black anther appendages, and four from the Cerro Cipó area of Minas Gerais, *Maguire, Maguire & Pires 44636*; and *King & Bishop 8442, 8451, and 8460*, having pale anther appendages.

In addition, the following nine species are described as new, one from Bolivia and eight from Brazil.

ASPILIA BISHOPLECTA H. Robinson, sp. nov.

Plantae suffruticosae e xylopodiis erectae ad 0.7 m altae mediocriter ramosae. Caules brunnescentes superne pallidiores teretes dense hispidi et hispiduli. Folia opposita, petiolis nullis vel subnullis; laminae oblongo-ovatae vel ellipticae 2.0-4.5 cm longae et 0.7-1.7 cm latae base rotundatae margine integrae vel pauce serrulatae leniter vel distincte anguste reflexae apice acutae vel subobtusae supra dense scabridae subtus hispidulae vel leniter velutinae in nervis secundariis pinnatae. Inflorescentiae terminales plerumque pluri-capitatae, pedunculis 1-7 mm longis dense canescentiter hispidulis. Capitula late campanulata 14-15 mm alta; squamae involucri ca. 30 oblongae imbricatae graduatae 1.5-10.0 mm longae et 1-4 mm latae plerumque pallidae et extus glabrae apice virides erectae obtusae vel breviter acutae vel vix apiculatae scabridulae; paleae flavae oblongae ad 10 mm longae et 1.5 mm latae glabrae apice ovatae et denticulatae acutae. Flores radii ca. 14 in capitulo; corollae flavae, tubis ca. 4 mm longis angustis glabris, limbis ca. 10 mm longis et 5 mm latis apice bilobatis. Flores disci 30-35 in capitulo; corollae flavae 8-9 mm longae, tubis ca. 3 mm longis glabris, faucibus longe campanulatis ca. 4 mm longis extus glabris in nervis fibrillosis, lobis triangularibus ca. 1 mm longis et 0.8 mm latis extus dense minute scabridulis intus margine dense longe papillois; filamenta in partibus superioribus ca. 0.5 mm longa vix incrassata; thecae antherarum ca. 3 mm longae; appendices antherarum nigrescentes ca. 0.45 mm longae et 0.37 mm latae extus glanduliferae. Achaenia submatura ca. 6 mm longa hispidosetulifera, setulis tenuibus profunde bifurcatis, coronis apicalibus valde constricta ad 0.3 mm latis minute squamelliferis non aristiferis. Grana pollinis in diametro ca. 32 μ m.

TYPE: BRAZIL: Minas Gerais: 28 km along road, NE of Barrocao, towards Salinas. Elev. 2600 ft. Subshrub with woody xylopodium, 3 dm tall, flowers yellow. Jan. 21, 1981. *R.M. King & L.E. Bishop 8584* (Holotype, UB; isotype, US). PARATYPE: BRAZIL: Minas Gerais: Estrada Três Marias a Corinto, km 36. Subarbusto 70 cm, capitulos amarelos. 30.11.1976. *G.L. Shepherd, J.B. de Andrade, L.S. Kinoshita & J.Y. Tamashiro 3820* (US).

The species bears showy clusters of large heads notable for their many graduated pale involucre bracts with green apical margins. The erect and sometimes slightly apiculate tips of the bracts are reminiscent of *Aspilia ramosissima* (Gardn) H. Robinson, comb. nov. (*Viguiera ramosissima* Gardn., London J. Bot. 7: 402.

1848) and *A. floribunda* (Gardn.) Baker, but the heads of the latter are much smaller and their anther appendages are distinctly yellow. The involucre bracts in *A. ramosissima* are much more strongly apiculate to long-mucronate and the bracts in *A. floribunda* are more acute. The actual relationship of the new species is probably closer to shrubby species such as *A. fruticosa* (Gardn.) Baker and *A. andersonii* H. Robins., but the heads of the latter are smaller with less series of involucre bracts, and the tips of the bracts are longer and strongly reflexed.

The name of the species honors the collector, Dr. L. E. Bishop.

ASPILIA CARDENASII H. Robinson, sp. nov.

Plantae suffruticosae ad 30-60 cm altae mediocriter ramosae. Caules fulvo-virides in partibus rufescentes teretes leniter striati breviter appresse strigosi. Folia opposita, petiolis indistinctis 1-2 mm longis; laminae lanceolatae vel lineari-lanceolatae 4.5-8.0 cm longae et 0.4-1.2 cm latae base subobtusae vel anguste rotundatae margine integrae vel subintegrae anguste leniter reflexae apice anguste acutae supra breviter strigosae subtus pallidiores in nervis breviter strigosae et aliter sparse strigulosae fere ad basem distincte sublongitudinaliter trineratae. Inflorescentiae in ramis terminales pauci-capitatae, pedicellis plerumque 1-2 cm longis dense breviter albo-strigosis. Capitula late campanulata 9-11 mm alta; squamae involucri ca. 12 imbricatae leniter graduatae ca. 3-seriatae oblongae plerumque 5-6 mm longae et 1.5-2.0 mm latae base pallidae supra mediam plerumque herbaceae erectae vel interdum superne patentees apice obtusae et in marginem anguste recurvatae, squamae interiores apice solum subherbaceae; paleae 7-9 mm longae in partibus majoribus inferioribus oblongis plerumque 2 mm latis superne in lobis truncatis demarcatae extus superne rubro-maculatae, paleae in partibus apicalibus valde angustiores triangulares ca. 1.5 mm longae et 1 mm latae apice acutae extus minute scabridulae. Flores radii ca. 10 in capitulo; corollae albae, tubis angustis ca. 2.5 mm longis plerumque glabris, limbis oblongis ad 8 mm longis et 2 mm latis apice profunde ad 4 mm bilobatis extus sparse puberulis. Flores disci ca. 20 in capitulo; corollae albae 7-8 mm longae, tubis 3.0-3.5 mm longis glabris, faucibus leniter campanulatis (1-) 2.0-2.5 mm longis extus sparse puberulis base sensim densioribus et paucis scabridulis in nervis fibrillosis, lobis anguste oblongis vel linearibus ca. 2 mm longis et 0.7 mm latis extus plerumque laevibus superne minute scabridulis margine persparse minute puberulis intus inferne laevibus superne leniter mammosis; filamenta in partibus superioribus ca. 0.4 mm longa vix incrassata; thecae ca. 3 mm longae; appendices antherarum nigrescentes ca. 0.5 mm longae et 0.4 mm latae extus glanduliferae. Achaenia oblonga ca. 5 mm longa et 2.5 mm lata hispido-setulifera, setulis tenuibus longe bifurcatis, lineis callosis inferioribus 4 distinctis, coronis

apicalibus valde constricta ad 1 mm latis margine minute squamelliferis perbreveiter biaristatis, aristis solum ad 0.3 mm longis. Grana pollinis in diametro 30-33 μ m.

TYPE: BOLIVIA: Santa Cruz: San Micerato-Santiago de Chiquitos. 970 m. Among grasses in sandstone hills. 30-60 cm high, flowers white. II-50. *Cárdenas 4563* (Holotype, US).

The species superficially resembles *Aspilia floribunda* (Gardn.) Baker, but the tips of the involuclral bracts are less differentiated, the anther appendages are black, and the ray and disk corollas are white and deeply lobed.

ASPILIA CYLINDROCEPHALA H. Robinson, sp. nov.

Plantae suffruticosae ad 1 m altae pauce ramosae. Caules rubescentes teretes vix striati strigosi et minute hispiduli. Folia opposita, petiolis subnullis ca. 1 mm longis; laminae anguste oblongae vel lineares 1.5-4.5 cm longae et 0.2-0.6 cm latae base acutae margine integrae anguste revolutae scabridae apice obtusae supra dense pilosulae et sparse scabridae subtus pallidiores velutinae in nervis primariis scabridae, nervis pinnatis. Inflorescentiae in ramis terminales subglomeratae pauci-capitatae, pedicellis 1-5 mm longis dense albo-hispidulis. Capitula cylindrica ca. 9 mm alta et 4 mm lata; squamae involucri ca. 35 imbricatae graduatae ca. 5-seriatae 1-6 mm longae extus in partibus majoribus pallidae et glabrae superne herbaceo-appendiculatae virides et lateraliter rubescentes hispidulae apice subtruncatae vel obtusae et submucronatae erectae vel saepe reflexae; paleae 7-8 mm longae et ca. 1.5 mm latae apice rubescentes obtusae vel breviter acutae plerumque in marginem pilosulae. Flores radii 6-7 in capitulo; corollae flavae, tubis ca. 3.7 mm longis glabris, limbis ovalis ca. 5 mm longis et 2.5 mm latis apice ad 1 mm bilobatis. Flores disci 5 in capitulo; corollae flavae ca. 6 mm longae, tubis ca. 1.5 mm longis glabris, faucibus ca. 3.5 mm longis extus glabris in nervis leniter fibrillosis, lobis triangularibus ca. 0.6 mm longis et latis extus dense minute scabridulis intus margine dense longe papillosis; filamenta in parte superiore ca. 0.4 mm longa vix incrassata; thecae 2.5-2.8 mm longae; appendices antherarum nigrescentes ca. 0.4 mm longae et 0.35 mm latae extus glanduliferae. Achaenia oblonga ca. 6.5 mm longa et ca. 2.2 mm lata hispidulo-setulifera, setulis tenuibus profunde bifurcatis, coronis apicalibus valde angustiores ca. 0.7 mm latis margine perminute setulo-squamelliferis non aristatis. Grana pollinis in diametro 25-27 μ m.

TYPE: BRAZIL: Minas Gerais: Serra do Cabral, immediately E of Joaquim Felício, campo and sparse cerrado on upper slopes. Elev. ca. 1000 m. Subshrub to ca. 1 m tall; rays yellow, disc yellow-brown. 6 March 1970. *H.S. Irwin, S.F. da Fonsêca, R. Souza, R. Reis dos Santos, J. Ramos 27007* (Holotype, UB; isotype, US).

The material of the new species was originally determined and distributed as *Aspilia floribunda* (Gardn.) Baker which it resembles in the narrow leaves, the multiseriatae graduated

involucral bracts, and the slight tendency for mucronate tips on the bracts. The new species differs, however, in the more abruptly differentiated often reflexed tips of the bracts and by the black anther appendages. In the latter characters and the somewhat woodier appearance the species seems closer in relationship to *A. fruticosa* (Gardn.) Baker and its allies, but the involucral bracts are in more series with shorter reflexed tips. The species is distinct from all relatives by the narrowness of the heads and the presence of only five flowers in the disk. The habit of the plant is very similar to species of the Eupatorine genus *Chromolaena*, especially *C. ivaeifolia* (L.) K. & R.

ASPILIA HERINGERTIANA H. Robinson, sp. nov.

Plantae suffruticosae 1 m altae? mediocriter ramosae.

Caules brunnescentes teretes vix striati dense strigosi. Folia opposita, petiolis indistincte demarcatis 1-2 mm longis; laminae lanceolatae 4-13 cm longae et 0.9-1.8 cm latae base acutae attenuatae margine remote subserrulatae planae vel interdum anguste reflexae apice anguste acuminatae supra strigosae et strigulosae subtus velutinae et in nervis primariis dense strigosae, nervis secundariis ascendenter pinnatis. Inflorescentiae in ramis terminales subaggregatae pauci-capitatae, pedicellis 5-15 mm longis dense albo-strigosis vel subhispidulis. Capitula late campanulata ca. 10 mm alta; squamae involucri purpureae exteriores ca. 14 lanceolatae 5-10 mm longae base ad 1.5 mm latae superne sensim herbaceae et laxe reflexae apice anguste acutae in partibus reflexis supra virides et scabrido-pilosulae subtus violaceae albo-velutinae, squamae interiores ca. 6 ad 10 mm longae et 3.5 mm latae apice rotundatae vel obtusae et irregulariter denticulatae extus inferiore glabrae superne subglabrae vel minute puberulae; paleae in partibus basilaribus oblongae ca. 7 mm longae pallidae ad 1.5-2.0 mm latae in partibus apicalibus ovato-appendiculatae ca. 1.5 mm longae et 0.7 mm latae rubescentes apice breviter acutae glabrae vel subglabrae. Flores radii ca. 6 in capitulo; corollae flavae, tubis angustis ca. 4 mm longis glabris, limbis oblongo-ellipticis ca. 9 mm longis et 4.5 mm latis apice breviter bilobatis base in marginem paucè puberulis. Flores disci ca. 20 in capitulo; corollae flavae 7.0-7.5 mm longae, tubis ca. 1.7 mm longis glabris, faucibus leniter campanulatis ca. 4.5 mm longis extus glabris in nervis distincte fibrillosis, lobis triangularibus ca. 0.9 mm longis et 0.7 mm latis extus minute puberulis perpaucè breviter spiculiferis intus praeter basem dense breviter papillois; filamenta in partibus superioribus ca. 0.3 mm longa vix incrassata; thecae ca. 3 mm longae; appendices antherarum nigrescentes ca. 0.5 mm longae et 0.4 mm latae extus glanduliferae et minute setuliferae. Achaenia oblonga ca. 5.5 mm longa superne ad 1.8 mm lata sericeo-setulifera, setulis leniter flexuosis longe bifurcatis, coronis apicalibus leniter sed distincte angustioribus ad 1.2 mm latis margine squamelliferis et minute biaristatis, aristis ad 0.3 mm longis.

Grana pollinis in diametro ca. 30 μ m.

TYPE: BRAZIL: Goiás: Município de Formosa, Rio Tiquiri. Cerrado, flores amarelas. 25 Maio 1967. *E.P.Heringer 11466* (Holotype, IBGE; isotype, US).

Aspilia heringeriana shows some similarity to the *A. fruticosa* group of the genus by its graduated involucreal bracts, but it is thoroughly distinct in the purplish color of the bracts, the lanceolate shape of the outer bracts, and the strongly differentiated round-tipped inner bracts. The corolla lobes of the disk flowers also seem unusual in the genus by their near lack of spicules on the outer surface and the more uniform papillosity on the inner surface.

ASPILIA HISPIDANTHA H. Robinson, sp. nov.

Plantae herbaceae perennes e xylopodiis erectae ca. 0.5 m altae non vel solum superne paucе ramosae. Caulis brunnescentes teretes dense scabri vel scabriduli. Folia opposita, petiolis subnullis 1-2 mm longis; laminae oblongo-ellipticae 2.5-4.5 cm longae et 0.3-1.2 cm latae base obtusae vel acutae margine plerumque integrae interdum paucе subserrulatae anguste reflexae apice obtusae vel breviter acutae supra in nervis primariis prominentes aliter sublaeves antrorse appresse scabridulae subtus leniter ascendenter pinnato-nervatae irregulariter scabridae in nervis longius. Inflorescentiae terminales in ramis uni-capitatae, pedunculis plerumque 3-7 cm longis superne sensim dense canescentiter scabridulis. Capitula late campanulata ca. 12 mm alta; squamae involucri exteriores herbaceae 5-10 integrae late oblongae vel late ovatae 10-14 mm longae et 4-8 mm latae apice obtusae extus puberulae et scabridulae vel pilosulae, squamae interiores 6-7 late oblongae ca. 8 mm longae et ca. 5 mm latae margine late scariosae et pilosulo-fimbriatae apice rotundatae; paleae oblongae ca. 8 mm longae et ca. 3 mm latae extus glabrae superne angustiores et denticulatae apice ovato-appendiculatae, appendicibus ca. 2 mm longis et 1.5 mm latis leniter rufescentibus margine minute denticulatis apice rotundatis vel vix obtusis extus in medio minute appresse puberulis. Flores radii 7-10 in capitulo; corollae flavae, tubis ca. 1.5-3.0 mm longis angustis glabris, limbis 15-17 mm longis et 6-8 mm latis apice bi- vel tri-lobatis. Flores disci 35-50 in capitulo; corollae flavae 5.5-7.0 mm longae, tubis 1.5-2.5 mm longis glabris, faucibus longe campanulatis 3.0-3.5 mm longis extus glabris in nervis non vel vix fibrillosis, lobis triangularibus 0.8-1.0 mm longis et latis extus inferne paucе minute puberulis superne sensim dense scabridulis intus margine dense longe papillosis; filamenta in partibus superioribus ca. 0.3 mm longa aliquantum incrassata; thecae ca. 2.5 mm longis in lineis interioribus et in connectivis minute hispidulae; appendices antherarum flavae ovatae ca. 0.5 mm longae et 0.4 mm latae extus glanduliferae. Achaenia obpyramidata ca. 6 mm longa et ca. 3.5 mm lata hispidosetulifera, setulis tenuibus profunde bifurcatis, coronis

apicalibus valde constrictis ad 1.5 mm latis vix biaristatis et margine breviter squamelliferis, aristis 0.3-1.5 mm longis. Grana pollinis in diametro ca. 30 μ m.

TYPE: BRAZIL: Bahia: 8 km along road S of Mucuge, 2-5 km E along base of mountain. Elev. 2800-3000 ft. Stiff herb from xylopodium, flowers yellow. Feb. 1, 1981. *R.M.King & L.E.Bishop 8761* (Holotype, UB; isotype, US). PARATYPES: BRAZIL: Bahia: Vicinity of Pico das Almas, ca. 20 km NW of the town of Rio das Contas. Elev. 3500-4600 ft. Stems decumbent from woody xylopodium, flowers yellow. Jan. 25, 1981. *R.M.King & L.E.Bishop 8653* (US); 37 km E of Seabra along road towards Itaberaba. Elev. 2200 ft. Stiff herb from xylopodium, flowers yellow. Feb. 2, 1981. *R.M.King & L.E.Bishop 8778* (US).

The new species is notable for the breadth of the herbaceous involucre bracts and for the minute hairs on and beside the connectives of the anthers. Two of the specimens, *8653* and *8761*, have ca. 8-10 involucre bracts while *8778* has only about five. The closest relative may be *Aspilia cupulata* Blake (*Oyedaea angustifolia* Gardn., not *Aspilia angustifolia* Oliver & Hiern) of eastern Brazil in Piauhay and Bahia (recent collections *King & Bishop 8594, 8677*). The latter has narrower involucre bracts, longer and narrowly oblong disk corolla lobes with red-tinged margins, and has no minute hairs on the anther connectives. It is the minute hairs abaxially on the anthers after which the new species is named.

ASPILIA PSEUDOVIGUIERA H. Robinson, sp. nov.

Plantae herbaceae perennes erectae ad 1.2 m altae non vel pauce ramosae. Caules cinereo-brunnescentes teretes leniter striati dense strigulosi, internodiis primariis elongatis ad 14 cm longis. Folia opposita, petiolis nullis; laminae lineares 4-13 cm longae et ad 0.6 cm latae base ca. 2 mm latae margine remote serrulatae apice anguste acutae supra strigulosae subtus in nervis majoribus strigulosae aliter asperulatae fere ad basem longitudinaliter trinervatae. Inflorescentiae terminales laxae cymosae alternatae ramosae plerumque 9-capitatae, pedicellis 15-30 mm longis dense albo-strigosis. Capitula late campanulata 10-13 mm alta; squamae involucri ca. 14 valde imbricatae ca. 3-seriatae leniter graduatae late ovatae vel late oblongae 4-7 mm longae et 3-5 mm latae, squamae exteriores apice sensim viridiores obtusae sparse pilosulae vel strigulosae, squamae interiores apice late rotundatae scariosae glabrae; paleae ca. 9 mm longae in partibus basilaribus oblongae ad 1.5 mm latae in partibus appendiculatis flavescentes ovato-oblongae 1.5 mm longae et

ca. 0.8 mm latae apice anguste acutae. Flores radii 12-14 in capitulo; corollae flavae, tubis angustis 2.5-3.0 mm longis glabris, limbis ellipticis 16-17 mm longis et 5.0-5.5 mm latis apice breviter inciso-bilobatis base in marginem hirtellis subtus in nervis majoribus minute puberulis. Flores disci ca. 60 in capitulo; corollae flavae 6-7 mm longae, tubis 1.8-3.0 mm longis glabris, faucibus leniter campanulatis 2.7-3.3 mm longis extus plerumque glabris base pauce minute puberulis et perpauce minute strigulosus in nervis non fibrillosis, lobis triangularibus ca. 0.6 mm longis et 0.6-0.7 mm latis extus dense breviter spiculiferis inferne pauce minute puberulis intus praeter basem papillosis margine longius; filamenta in partibus superioribus ca. 0.3 mm longa leniter incrassata; thecae 2.0-2.5 mm longae; appendices antherarum flavae late ovatae ca. 0.4 mm longae et latae extus glanduliferae. Achaenia anguste oblonga ca. 4.8 mm longae et 1 mm lata sericeo-setulifera, setulis non flexuosis apice breviter bifurcatis, coronis apicalibus subtiliter constrictis in sinis breviter alatis, aristis 2 ad 1.0-1.5 mm longis, squamellis distinctis ad 0.5-0.7 mm longis. Grana pollinis in diametro 25-27 μ m.

TYPE: BRAZIL: Mato Grosso do Sul: Mun. Mundo Novo. Porto Frangeli. Ereta, 1 m 20, capitulos amarelos, Vargedos inundaveis. 10/12/1982. *G.Hatschbach 45839* (Holotype, MBM; iostype, US).

The new species has an apical crown with broad aristae and slight wings resulting in a nearly unstricted appearance more like a *Viguiera*. Such achenes are also seen in *A. asperrima* (Gardn.) Baker and *A. attenuata* (Gardn.) Baker of Goias, but the latter two differ by having among other things, broader leaves more coarsely pubescent outer involucreal bracts, less strongly differentiated inner involucreal bracts, more abruptly constricted and more medially costate appendages on the paleae, and longer lobes on the disk corollas with a highly differentiated fringe of marginal papillae. The latter two species and the petiolate *A. latissima* Malme are all like the present species in the less flexuose shallowly bifid setulae on their achenes. In spite of the great difference in leaf shape, *A. latissima*, having the same type of elongate achenes and occurring in similar pantanal habitats in the same geographical area, might be the closest relative.

ASPILIA PSEUDODEAEA H. Robinson, sp. nov.

Plantae suffruticosae ad 1.5 m altae mediocriter ramosae. Caules brunnescentes rubrotincti teretes striati dense breviter hirsuti et hirtelli. Folia opposita, petiolis 5-12 mm longis distaliter subabrupte delimitatis; laminae ovaes plerumque 5-12 cm longae et 2-5 cm latae base rotundatae et sensim breviter acuminatae margine irregulariter subserrulatae et minime anguste reflexae apice acutae supra scabridae in nervis majoribus anguste distincte prominulae subtus leniter pallidiores dense

pilosae in nervis distincte prominentes, nervis secundariis pinnatis leniter ascendentiter arcuatis in sextis inferioribus valdioribus. Inflorescentiae in ramis terminales subaggregatae multicapitatae, pedicellis 5-10 mm longis dense pallide hispidulis. Capitula late cylindrica 10-12 mm alta; squamae involucri ca. 16 imbricatae inaequales ca. 3-seriatae late oblongae 3-7 mm longae et 2-4 mm latae apice rotundatae margine ciliato-fimbriatae exteriores extus in medio pilosulae; paleae fulvescentes ca. 7 mm longae inferne ad 2 mm latae superne sensim angustiores et in appendicibus rotundatis ca. 1 mm longis et latis terminatae. Flores radii ca. 8; corollae flavae, tubis ca. 2.5 mm longis glabris, limbis ovalibus ca. 5 mm longis et 2.5 mm latis glabris minute trilobatis. Flores disci 10-12 in capitulo; corollae flavae ca. 5 mm longae, tubis ca. 1 mm longis glabris, faucibus cylindrico-campanulatis ca. 3 mm longis extus glabris in nervis non fibrillosis, lobis triangularibus ca. 1.3 mm longis et ca. 0.9 mm latis extus dense minute obtuse spiculiferis intus superne plerumque in marginem dense longe papillois, ductis resiniferis distinctis; filamenta in partibus superioribus ca. 0.4 mm longa distincte incrassata; thecae ca. 2.2 mm longae; appendices antherarum flavae ca. 0.5 mm longae et 0.4 mm latae extus glanduliferae. Achaenia leniter obpyramidata ca. 6 mm longa et 2 mm lata minute pilosulo-setulifera, setulis tenuibus flexuosis profunde bifurcatis, coronis apicalibus distincte leniter constrictis ca. 1.3 mm latis margine non aristatis dense squamelliferis, squamellis ca. 0.2 mm longis. Grana pollinis in diametro ca. 25-27 μ m.

TYPE: BRAZIL: Distrito Federal: ca. 25 km NW of Brasília. Wet campo and adjacent gallery margin. Elev. 900 m. Subshrub ca. 1.5 m tall. Rays yellow; disk yellow-brown. 12 May 1966. *H.S. Irwin, J.W. Grear, Jr., R. Souza, R. Reis dos Santos 15792* (Holotype, UB; isotype, US).

The name of the new species is intended to reflect the strictly habitual resemblance to some members of the Andean genus *Oyedaea* which differs by having winged, prominently aristate achenes without constricted apical crowns, but which usually has distinct petioles and clustered broadly cylindrical heads. The *Oyedaea* type habit seems unique among the brasilian species of *Aspilia*. The short basal tubes and cylindrical throats on the disk corollas, the lack of fiber sheaths on the corolla veins, and the thickened anther collar are characters that might indicate relationship to the genus *Dimerostemma*, but the new species does not have the narrow contorted glanduliferous style branches, winged achenes, thinner leaves, or differentiated outer involucre bracts that are characteristic of the latter.

ASPILIA SIMPSONAE H. Robinson, sp. nov.

Plantae suffruticosae ad 0.5 m altae mediocriter ramosae. Caules fulvo-virides teretes striati hirsuti et hispiduli in nodis densius. Folia opposita, petiolis ca. 1 mm longis; laminae

coriaceae ovatae 2.5-7.0 cm longae et 0.9-3.8 cm latae base late rotundatae margine serrulatae apice acutae supra virides subventulosae aspero-pilosulae subtus subnitido-virides reticulo-exsculptae in nervis majoribus hirsutae aliter hispidae fere ad basem valde trinervatae. Inflorescentiae terminales corymbosae, pedicellis 0.5-4.0 cm longis dense hirsutis. Capitula late campanulata 12-16 mm alta; squamae involucri 15-20 subaequales oblongae 12-15 mm longae et 3-5 mm latae in partibus basilaribus pallides breves in partibus majoribus appendiculatis longae herbaceae apice breviter acutae extus pilosulae; paleae ca. 10 mm longae inferne pallidae ad 3 mm latae glabrae supra median sensim lineares ca. 0.8 mm latae rubrae extus minute puberulae. Flores radii ca. 14 in capitulo; corollae albae, tubis ca. 4 mm longis angustis glabris, limbis ca. 17 mm longis et 5 mm latis apice bilobatis. Flores disci 25-55 in capitulo; corollae albae 7-8 mm longae, tubis ca. 2 mm longis glabris, faucibus longe campanulatis 4.5-5.0 mm longis extus plerumque glabris in nervis distincte fibrillosis, lobis triangularibus vel ovato-triangularibus ca. 1 mm longis et 0.8-0.9 mm latis extus inferne paucis pilosulis margine et superne dense minute scabridulis intus margine et superne papillosis; filamenta in partibus superioribus ca. 0.4 mm longa leniter incrassata; thecae antherarum 3.0-3.5 mm longae; appendices antherarum nigrescentes ovatae ca. 0.5 mm longae et 0.4 mm latae extus glanduliferae. Achaenia ca. 8 mm longa et 2.5 mm lata hispidulo-setulifera, setulis tenuibus profunde bifurcatis, coronis apicalibus valde constricta ad 1.5 mm latis margine breviter squamelliferis et biaristatis, aristis ad 1 mm longis sparse pilosulis. Grana pollinis in diametro 30-35 μ m.

TYPE: BRAZIL: Mato Grosso: 30 km West of Alto do Araguaia on route 364. Herbs to 1 m tall along the road. Ligules white. Chaff in buds deep red. Feb. 10, 1977. *B.B. Simpson 8594* (Holotype, US). PARATYPE: BRAZIL: Mato Grosso: Mun. Alto Garças. Rod. BR 364. Erva 50 cm, capitulos e ligulas alvas. Do cerrado. 14/2/1974. *G. Hatschbach 34165* (US).

The paratype specimen was distributed originally as *Aspilia leucoglossa* Malme which is a mostly unbranched, unicapitate, xylopodial species related to the common *A. foliacea* (Spreng.) Baker. It has leaves of similar shape to those of the present species but with a much thinner texture. The new species actually seems closest to *A. ovalifolia* (DC.) Baker of Goias, but that is a much less coarsely pubescent species with more broadly ovate, duller textured, mostly alternate leaves with yellow flowers and broader topped pale paleae.

ASPILIA VIEIRAE H. Robinson, sp. nov.

Plantae herbaceae perennes e xylopodiis erectae ad 0.4 m altae non vel paucis ramosae. Caules fulvi teretes paucis striati strigosi. Folia opposita sessilia inferiores minores base bracteiformes; laminae leniter coriaceae lineari-lanceolatae ad 6-12 cm longae et 0.7-1.4 cm latae base attenuatae margine remote

mucronato-serrulatae apice anguste acutae supra et subtus virides sparse breviter strigosae et exsculpto-venosae fere ad basem sublongitudinaliter tri- vel quinque-nervatae. Inflorescentiae terminales et solitariae vel diffusae in ramis terminales unicapitatae, pedicellis plerumque 3-6 cm longis superne latioribus dense breviter strigosis et strigulosis. Capitula late campanulata 12-14 mm alta; squamae involucri 6-8 lanceolatae 15-23 mm longae et 4-5 mm latae herbaceae patententes vel leniter reflexae apice anguste acutae extus dense strigosae; paleae ca. 9 mm longae in partibus basilaribus oblongae ad 1.5 mm latae extus glabrae superne in denticulis terminatae in partibus apicalibus angustiores lanceolatae ca. 2.5 mm longae argute acutae extus minute puberulae. Flores radii 8-10 in capitulo; corollae albae, tubis angustis ca. 4.5 mm longis glabris, limbis oblongis ca. 15 mm longis et ca. 5 mm latis base abrupte rotundatis et in marginem minute puberulis apice distincte bilobatis extus in nervis minute puberulis. Flores disci ca. 25-30 in capitulo; corollae albae ca. 7 mm longis, tubis ca. 2.5 mm longis glabris, faucibus leniter campanulatis ca. 4 mm longis extus glabris in nervis distincte fibrillosis, lobis triangularibus ca. 0.8 mm longis et 0.7 mm latis extus minute puberulis et dense scabridulis intus margine et superne breviter papillosis; filamenta in partibus superioribus 0.30-0.35 mm longa aliquantum incrassata; thecae ca. 3 mm longae; appendices antherarum nigrescentes ca. 0.4 mm longae et 0.35 mm latae extus glanduliferae. Achaenia obpyramidata ca. 6 mm longa et 3 mm lata sericeo-setulifera, setulis vix flexuosis apice plerumque breviter bifurcatis, coronis apicalibus valde constrictis ad 1.5 mm latis margine distincte squamelliferis et breviter biaristatis, aristis 1.0-1.5 mm longis dense scabridulis. Grana pollinis in diametro ca. 37 μ m.

TYPE: BRAZIL: Rondônia: A 4 km proximo de Vilhena, 12°45'S-60°10'W. Campo. Erva de 40 cm de altura; flores brancas; cálice verde. Solo argiloso. 25/10/1979. *M.G.Vieira, J.L.Zarucchi, R.H.Peterson, J.F.Ramos & C.D.A.Mota 614* (Holotype, INPA; isotype, US). PARATYPE: BRAZIL: Rondonia: Vilhena, arredores do aeroporto. Arbusto de 40 cm, flor branca, campo cerrado. 2/1/79. *M.G.Silva & A.Pinheiro 4096* (US).

The new species has the erect mostly unbranched stems from a xylopodium of the type seen in *Aspilia foliacea*, *A. hirsuta*, and *A. leucoglossa*, but the leaves are of a totally different texture, venulation, shape, and pubescence. The flowers also seem to differ in being white.

LITERATURE CITED

- Cabrera, A. L. 1970. Novedades sinanterológicas entrerrianas. *Darwiniana* 16: 409-411.
- Robinson, H. 1984a. Studies in the Heliantheae (Asteraceae). XXXII. New species of *Wedelia* from Brasil. *Phytologia*

55: 389-414.

Robinson, H. 1984b. Studies in the Heliantheae (Asteraceae).

XXXIII. New species of *Aspilia* from South America.

Phytologia 55: 415-423.

_____. 1984c. Studies in the Heliantheae (Asteraceae). XXXI.

Additions to the genus *Dimerostemma*. Proc. Biol. Soc. Wash.

97: 618-626.

_____. 1984d. Studies in the Heliantheae (Asteraceae). XXXIV.

Redelimitation of the genus *Angelphytum*. Proc. Biol. Soc.

Wash. in press.



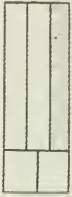
PLANTAE BRASILIANAЕ
 REGALES ET EPISCOPALES

UNITED STATES

2422534

NATIONAL HERBARIUM

Aspilia bishoplecta H. Robinson, Isotype, United States National Herbarium. Photos by Victor E. Krantz, Staff Photographer, National Museum of Natural History.



Aspilia
cardenasii H. Robinson

Herbarium Cardenasianum

PLANTS OF BOLIVIA

Asp.

UNITED STATES NATIONAL MUSEUM

Aspilia cardenasii H. Robinson, Holotype, United States National Herbarium.



THE NEW YORK BOTANICAL GARDEN
 Plants of the Piauí de Brazil
 Estado do Piauí, Brasil
 Serra do Caldeirão

No. 27 A 7

UNITED STATES

2709212

NATIONAL HERBARIUM

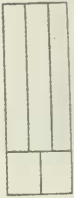
Suberuous to ca. 1m tall. Rays yellow; disc yellow-brown. Campo and matras cerrado on lower slopes, immediately E. of Joaquim Peixoto. Elev. ca. 1000m.

H. S. Gentry, S. F. de Paula, R. Sousa & José dos Santos, J. Soares

6 March 1979

Plant with chromosome with the collaboration of the Universidade de Brasília and the Instituto de Pesquisas e Experimentação Agrícola de Brasília, maintained in part by funds from the National Science Foundation.

Aspilia cylindrocephala H. Robinson, Holotype, United States National Herbarium.



UNITED STATES

2885177

NATIONAL HERBARIUM

Herbarium of the University of California
 Berkeley, California
 Dec. 11, 1967
 No. 11416


Aspilia heringeriana H. Robinson, Isotype, United States National Herbarium.



UNITED STATES

2977564

NATIONAL HERBARIUM


 Prefectura Municipal Casaba
 M. S. P. 1954
Aspilia pseudoviguiera H. Robinson
 Isotype

Aspilia pseudoviguiera H. Robinson, Isotype, United States National Herbarium.

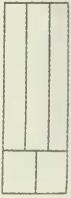


UNITED STATES

281832

NATIONAL HERBARIUM

Aspilia pseudoyedaea H. Robinson, Isotype, United States National Herbarium.



UNIVERSITY OF CALIFORNIA

2780925

NATIONAL HERBARIUM

Aspilia simpsonae H. Robinson, Holotype, United States National Herbarium.



Instituto Nacional de Pesquisas da Amazonia

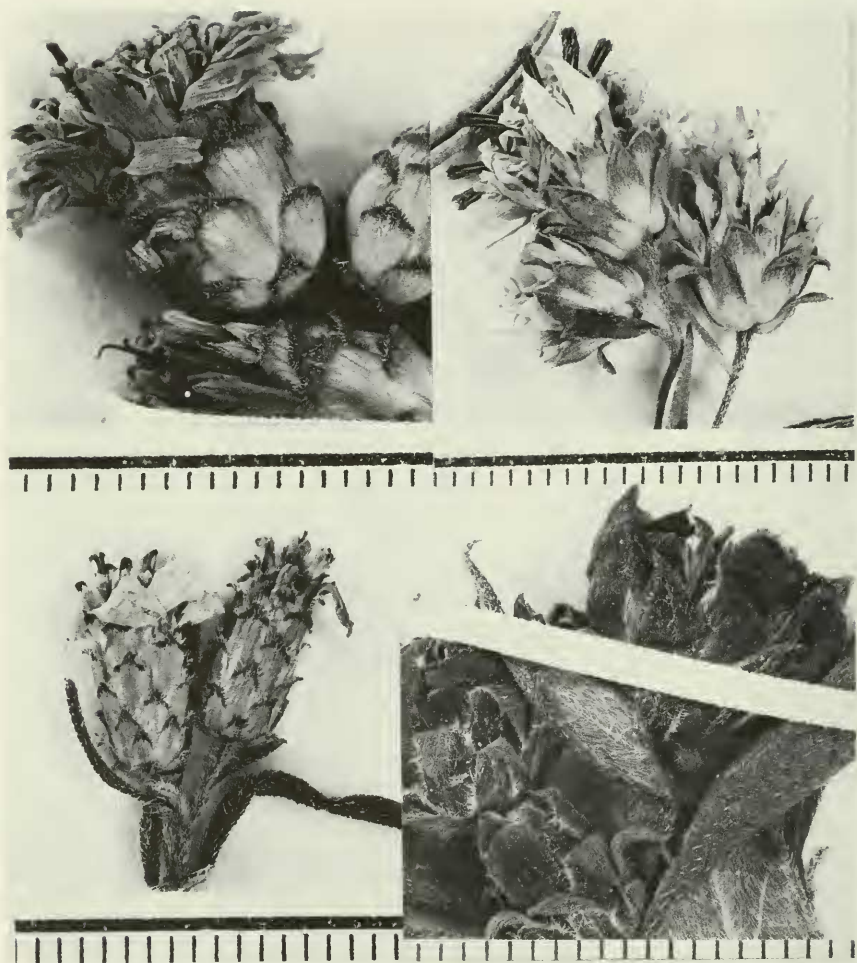
UNITED STATES

2886237

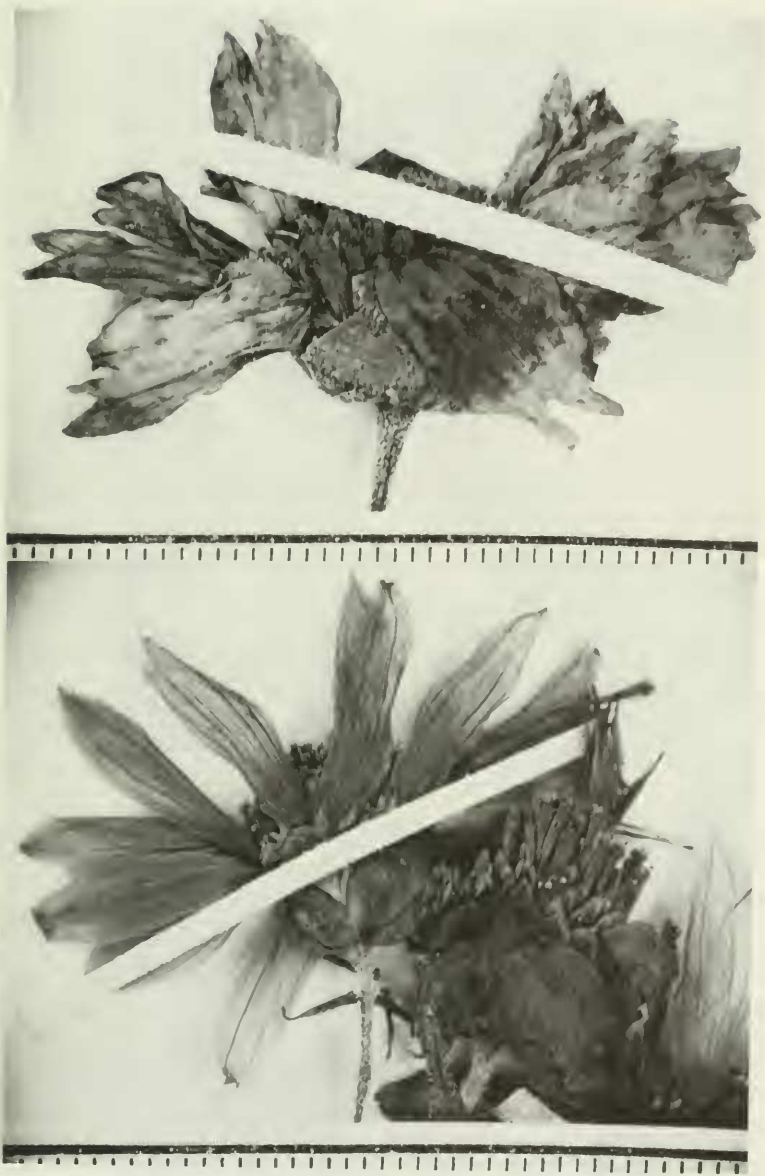
NATIONAL HERBARIUM

Vieira

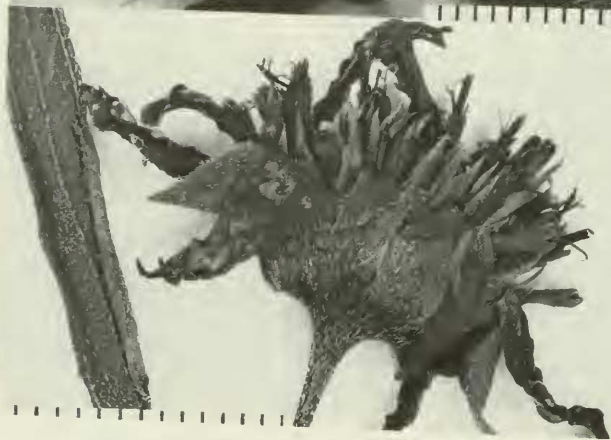
Aspilia vieirae H. Robinson, Isotype, United States National Herbarium.



Enlargements of heads. Top left: *Aspilia bishoplecta*.
Top right: *A. cardenasii*. Bottom left: *A. cylindrocephala*.
Bottom right: *A. heringeriana*.



Enlargements of heads. Top: *Aspilia hispidaantha*. Bottom: *A. pseudoviguiera*.



Enlargements of heads. Top: *Aspilia pseudoyedaea*. Middle: *A. simpsonae*. Bottom: *A. vietrae*.